



(12) **United States Patent**
Tsunehara et al.

(10) **Patent No.: US 6,483,816 B2**
(45) **Date of Patent: *Nov. 19, 2002**

(54) **CDMA COMMUNICATION SYSTEM AND ITS TRANSMISSION POWER CONTROL METHOD**

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/818,510**

(22) Filed: **Mar. 28, 2001**

(65) **Prior Publication Data**

US 2001/0012276 A1 Aug. 9, 2001

Related U.S. Application Data

(63) Continuation of application No. 08/985,281, filed on Dec. 4, 1997.

(30) **Foreign Application Priority Data**

Dec. 6, 1996 (JP) 8-326493

(51) **Int. Cl.⁷** **H04B 7/185; H04B 7/216**

(52) **U.S. Cl.** **370/318; 370/335; 455/69**

(58) **Field of Search** **370/310, 318, 370/335, 320, 322, 324, 328, 329, 342; 455/69, 68, 70, 115, 432, 522, 134; 379/318**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,559,790 A	9/1996	Yano et al.	370/342
5,604,730 A	2/1997	Tiedemann, Jr.	370/252
5,621,723 A *	4/1997	Walton et al.	370/335
5,673,259 A	9/1997	Quick, Jr.	370/342
5,713,074 A	1/1998	Hulbert	455/69
5,784,360 A	7/1998	I et al.	370/252
5,794,129 A	8/1998	Komatsu	455/69

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

WO	95/31879	11/1995
WO	96/03813	2/1996

OTHER PUBLICATIONS

“Development on CDMA Packet Mobile Communication System,” by Yano et al, Communication Society Meeting, Institute of Electronics, Information and Communication Engineers, B-389 (1996).

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(57) **ABSTRACT**

An uplink channel transmission power control method is provided for a CDMA mobile communication system performing one way communication. A base station measures the received level of data transmitted from each mobile terminal at each channel, and generates a transmission power control signal of each uplink traffic channel. The generated transmission power control signals are multiplexed, and the multiplexed common transmission power control signal is transmitted to all mobile terminals by using the common channel shared by the mobile terminals. Each mobile terminal derives the transmission power control signal of the uplink traffic channel used by the terminal, from the received common transmission power control signal, and controls the transmission power of a data packet.

6 Claims, 10 Drawing Sheets

